Revised 10/25/99
(Comments from
10/5/99 Work Group
Meeting Incorporated)

CALFED BAY DELTA PROGRAM
DRINKING WATER CONSTITUENTS WORK GROUP

ASSESSMENT OF SOURCES AND MAGNITUDES OF LOADS FOR DRINKING WATER CONSTITUENTS OF CONCERN

Draft Work Plan Outline
(For comment and review)

OBJECTIVE - Determine baseline conditions under various hydrologic conditions and operational scenarios. Baseline conditions must be determined and agreed upon by consensus of stakeholders participating in the CALFED process so that CALFED water quality actions can be evaluated to determine improvement in water quality. In addition, this study will be used to determine the adequacy of current information, to identify monitoring and research gaps, and to help prioritize future actions to reduce discharges of drinking water constituents of concern.

Task 1 - Determine parameters of concern, benchmark locations, and contaminant sources for evaluation.

A. Parameters of Concern
1. Disinfection Byproducts Precursors – (TOC/DOC/Br)
   UVA254
   Quality/ Reactivity of organic carbon

2. TDS

3. Pathogens/coliforms

B. Hydrology

C. Benchmark Locations (locations of importance relative to CALFED actions – monitoring locations)

   1. Sacramento River
      a. Upstream of Colusa Basin Drain
      b. Alamar Marina/Veterans Memorial Bridge
      c. Freeport
      d. Greene's Landing/Hood

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e. Other available Sacramento River sites

2. Lower San Joaquin River
    a. Upper watershed
    b. Vernalis
    c. Below Mendota Pool
    d. NPDES Data - receiving water data

3. Upper San Joaquin River
    a. Location near Friant Dam
    b. Above Freeport?
    c. Up American and Feather Rivers?
    d. Mokulumne
    e. Tuolumne
    f. Stanislaus
    g. Merced
    h. Consumnes

4. Delta
    a. Barker Slough Pumping Plant
    b. Banks Pumping Plant
    c. Tracy Pumping Plant
    d. Rock Slough Pumping Plant (Contra Costa Water District Pumping Plant #1)
    e. Contra Costa County Water District intake on Old River
    f. Selected Delta channel locations

5. Exchange Locations (Connected to Ops Work Group)
    a. South of Delta site
    b. Check 13
    c. O'Neill
    d. Other locations where monitoring is already occurring

6. Water Treatment Plant Intakes
    a. North Bay Aqueduct - NBA Regional, Benicia
    b. South Bay Aqueduct - SCVWD, ACWD, Zone 7 - Pacheco SL001000, SL005000 tunnel island ask Santa Clara
    c. Bollman Water Treatment Plant (CCWD) - Gets Mallard Slough Diversions more
    e. Randall Bold Treatment Plant (CCWD)

Other Locations (of SWP aqueduct)
    a. Jensen
    b. Mills
    c. Avek

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d. Coastal Location – Polinio (CCWA)

C. Contaminant Sources

Revise this section using CMARP outline which organizes it by constituents of concern

1. Wastewater discharges
    a. Sacramento Regional Plant
    b. Stockton
    c. Other larger dischargers (Roseville, Redding, Modesto)
    d. Sacramento Combined Stormwater System
    e. New sources

2. Stormwater discharges - CMARP document - add matrix
    a. Sacramento City/County
    b. Stockton (Consider TMDL Program)
    c. Modesto
    d. New sources

3. Sacramento River watershed agricultural drainage - DB * move these locations
    a. Colusa Basin Drain
    b. Sacramento Slough
    c. Natomas East Main Drainage Canal (mix of ag/urban)

4. San Joaquin River watershed agricultural drainage
    a. Mud and Salt Sloughs

5. Delta island drainage

6. Seawater

Task 2 - Identify data, obtain data and put into data management system.

A. DWR MWQI Program

B. DWR O&M

C. USGS - (including NAWQA data)

D. Sacramento River Watershed Program and CMP

E. Water Agencies (including ICR data)

F. NPDES Monitoring Programs
    a. San Joaquin and Sacramento Counties

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G. Stormwater Monitoring Programs

H. SF Estuary Institute

I. USGS Organic Carbon data

J. Other sources identified in DWR Compendium

K. Hydrological data sources
    1. Models
    2. Existing data (pumping rates - Banks and Tracy)

Task 3 - Analyze Data

A. Determine data sufficiency
    1. Matrix of parameters and locations with notations on sampling frequency, period of record, etc.

    2. Review research questions to determine if data are sufficient to answer them

B. Identify key research questions
    1. What are the sources, concentrations, and loadings of parameters of concern at benchmark locations?
        a. Sacramento River
        b. San Joaquin River
        c. Delta
        d. Water treatment plant intakes

    2. How do the concentrations and loadings vary seasonally and historically?

    3. How do the concentrations and loadings vary with respect to hydrologic year type?

C. Determine data analysis techniques and data presentation for each research question
    1. Time series plots of concentrations and loads

    2. Time series analysis

    3. Other statistical analysis (linear regression, mean, median, etc.)

Task 4 - Modeling Analysis

A. Historical Simulation
    1. Parameters of Concern - Br, TDS/EC, TOC/DOC

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2. Analyze model data - identify statistical differences with observed data

B. Baseline Simulation

1. Parameters of Concern - Br, TDS/EC, TOC/DOC

2. Develop hydrology and operating assumptions in consultation with Operations Work Group

3. Develop boundary water quality assumptions

4. Analyze model data

5. Refine assumptions as necessary

Task 5 - Financial Strategy

A. Refined cost estimates of this study

B. Identification of existing funding sources and opportunities for partnership with CALFED for this study

C. A budget for this study which is coordinated with other programs

Task 6 - Schedule for Completion of Study

Task 1 -
Task 2 -
Task 3 -
Task 4 -
Task 5 -
Task 6 -